

## **When the Future Becomes the Past: Where will our Print Collection Be in 2050?**

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**Abstract.** When the future becomes the past. I'm going to look at the past to see if it can tell us what the future will hold. I want to predict where our print collection will be in 2050.

### **1. Introduction**

My first LISA conference was the fifth one in 2006 in Cambridge, Massachusetts. I'd been an astronomy librarian for four months. John Huchra gave the keynote address and spoke about the future of science libraries in the information age. He listed five things libraries needed to do in the future. These are:

1. Keep providing access
2. Continue to educate staff
3. Maintain local archives
4. Help researchers maintain their archives
5. Fight for open access.

He ended with these wishes: “You are our front line of defense. Keep up the good work!” Here I am, eight years later talking about the libraries of the future — do we talk about this every LISA? (Huchra 2007).

The people from the ADS gave their presentation on the future of libraries. Their opening line was, “We are at the end of the paper era. For the past two centuries, libraries have been primarily devoted to building and maintaining vast collections of paper. These activities are nearing the end of their useful life. The convenience of finding and using electronic materials at one's desk are so great that the physical use of the technical library has virtually collapsed.” At this LISA, we heard all about the ADS's next-generation search platform. They know where their future is (Kurtz et al. 2007).

My library is full of books: new books, old books. We have about 80,000 astronomy books and journals. The US Naval Observatory library was started in 1843 when the founder was given a ticket to Europe and eight hundred dollars to purchase books.

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We've been buying and holding onto paper books ever since. He did a great job purchasing important, rare astronomy books. We don't buy books like this anymore, but we're glad he did!

When I look at the future of the USNO library, I look at two different sections. One is the support of current and future work of our astronomers. We give them access to the up-to-date information they need anytime, anyplace, and on any device. On Wednesday, we heard three great talks on research data curation and preservation. This is important for the USNO.

The other part of our library is the rare book collection. These fabulous books were passed on to me to preserve, but preservation without use seems futile. The easier it is for others to access our rare book images, the more that people will see them and the more their value can be shown. My goal for this paper is to explain a little bit of the history of books, and about what has gone on before. Let's consider what people thought each time the medium changed and whether they thought it would survive.

## 2. Books and libraries in the past

"Librarians: Working for you since 2600 BC."<sup>1</sup> From the beginning, man had a desire to write things down, and to preserve data for the future. This started with clay tablets,

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<sup>1</sup>Winner of Springer's "Best Quotes" content from two years ago, coined by a librarian from Lisbon, Portugal.



Figure 1. Brenda Corbin and Sally Bosken. Cambridge, MA June 2006

which go back to 2600BC. The great library of the Assyrian Empire had 24,000 tablets. Clay tablets eventually gave way to papyrus, and Egyptian libraries were filled with scrolls.

The acquisitions goal of the great library at Alexandria was to hold everything, from authoritative manuscripts to the most obscure commentaries. Ptolemy believed that knowledge and data was a resource and a commodity, a form of capital to be acquired and hoarded, and that the centralization and consolidation of scrolls into libraries would be the future for scholars. In an effort to stop the growth of libraries in other places, the city rulers of Alexandria banned the export of papyrus. The move backfired as it inspired the people of Pergamum to invent parchment which for its strength and reusability would prove to be the preferred writing medium in Europe for the next one thousand years.

In the Middle Ages scrolls were replaced by codices. The handwritten codex transformed the shape of the book and offered a form that has lasted for centuries. The spread of the codex is often associated with the spread of Christianity. Codices were not only easier to read than scrolls, they were easier to store, too. By placing the codices flat on the library shelf, they would have a longer more stable life.

Time moved on and modern inventions were coming: the beautiful, handmade manuscripts would eventually give way to machine-printed books when Guttenberg introduced his printing press in the fifteenth century. It is worth noting that all of the rare books we have at the Naval Observatory are post-Guttenberg.

### 3. Modern day

So let us leap forward to modern day. Libraries exist with paper books, but then we began to worry about paper. Can a library keep all of its paper in a perfect environment?



Figure 2. US Naval Observatory Library

No, in fact some paper will deteriorate faster than others. Can you win the war against acidification? No. All paper should be properly stored in low temperatures, low humidity, and dark storage environments. Many processes such as stencils, mimeographs, and thermofaxes produced in the 1940s are deteriorating fast. Deacidification does not make the paper stronger: it only stops it from deteriorating further. Permanent paper is acid-free, but is paper ever permanent?

Just like everything else, clay tablets, papyrus, parchment, and scrolls, things change. Electronic books have been introduced. At the last LISA in India in 2010, Molly White, librarian at the University of Texas at Austin asked of e-books in Astronomy: “If you buy it will they come?” The UT libraries had explored acquiring and experimenting with e-book services for ten years. They asked if users preferred electronic or print. In 2010, Molly (White 2010) found there was no clear preference in the astronomy community for e-books over printed books. But has that changed dramatically now in 2014?

In January of this year, a Pew report (Zickuhr and Rainie 2014) came out with a resounding yes: things have changed. In March of this year the Harris poll (Shannon-Missal 2014) found the same thing. People’s attitudes toward reading on screen have changed dramatically. Just last month the Wall Street Journal had an article about the Navy’s new e-reader called NERD. It is designed for sailors on submarines who have no wireless internet access, no space, and lots of security concerns as they move about the ocean floor for months.

E-books are the new medium. The accelerating transition from paper books to electronic books provides an opportunity and not a threat. Libraries can take this opportunity to provide a traditional service in a new way to our astronomers and do so in the virtual environment that is now familiar to us all. It is likely that, in time, print will be the exception and probably not an option with the traditional core astronomy journals. The library collection is rapidly becoming an online collection. Imagine how not surprised I was two weeks prior to this year’s LISA to hear that IOP will stop printing the *Astronomical Journal* and *Astrophysical Journal* series.

What is the motivation to use e-books? They offer 24/7 access, remote access, full-text searching, copy and paste, portability, no reshelving, or loss or damage. They are environmentally friendly and save lots of space.

In 2002 at LISA IV in Prague, Zhang Jian asked “How can the traditional library filled with paper resources, built by several generations of astronomers and librarians continue to exist and thrive?” His answer twelve years ago was “It must become a mixed library, one that functions not only as an electronic library but also one that is able to preserve the important astronomical publications in their traditional formats for coming generations” (Zhang 2003).

My library is doing this. We are preserving important astronomical publications in their traditional formats. And this brings me to the future of the second section of the USNO collection — our rare books. We love them. We work on books that are in need of repair. We treat them kindly. We have a very sophisticated fire retardant system to protect them. We began a small digitalization project so that more people could also

cherish our wonderful rare books. We started with this delightful hand written diary from the 1874 Transit of Venus.<sup>2</sup>

This is the kind of information that adds so much. What a shame to have it in our library but lost to the rest of the world. We want our print collection to be available to many patrons. When we digitize an image we attach it to the bibliographic record in our card catalogue. Now, anyone can download it from the web version of our card catalogue. This whole project was started to give our Bayer images to a man designing a planetarium display in Prague. I wanted to be able to give him high quality images but he couldn't receive big files in his email. He could go to our website and download them. This got me started and I began scanning some of our special items.<sup>3</sup> Every book has its own story: digital copies like this let the world see some of our precious items, and they also play a preservation role as surrogates. The fragile originals are protected from damage caused by handling while still available to a worldwide audience. Right now, the USNO rare book collection is in its digital infancy.

#### 4. The future

Is the era of collecting of print materials over? Today's libraries still have "stuff" — collections of rare books, new books, journals, archives, and photos within their walls. When the web came into being, predictions flew: libraries would close, librarians would no longer be needed, books were dead, and everything is on the computer. Where are we now? There are reasons to retain print materials but not every library needs to keep everything. Perhaps we could plan for a limited number of print repositories around the world. I would like to suggest, and also predict that in the future, the world will have centralized print collection points.

We could form cooperative paper collections, which would offer paper storage and information management of the collection for all the astronomy libraries in the certain area. I'm imagining something like one in Texas, one in Chicago, and one in Toronto, for example. Let's put all the astronomy paper collections in North America together in one print repository and then duplicates can be removed. All of the cooperating libraries would rely on the print repositories. They would function like a clearing house as the go-to place for old hard-to-find paper items.

Libraries, like museums, contain manufactured items from the past that help us to discover and understand that past. With libraries, however, the assumption has always been that the primary purpose of the objects they contain is to carry on using them in the way their makers intended. If there were astronomy paper cooperatives, the primary purpose of Galileo's book would continue. Not as a relic in a museum, but as a book that people can read.

Do you remember reading this request on PAMnet? Caltech needed a paper copy of an article. Their librarian, George Porter said, "as so many other libraries have done,

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<sup>2</sup>One page in the handwritten diary reads: August 7, 1874: Went over to the excellent Cape Town Library this afternoon. Spent a couple of hours there. The library contains from 45–50,000 volumes. The librarian was courteous to the last degree.

<sup>3</sup>From a letter written by a USNO astronomer, Simon Newcomb, found in an algebra book he wrote: "Dear daughter Emily, They tell me that you find algebra hard now." He goes on about the importance of studying and then he ends it with, "Write Papa all about it and what the troubles are. Your loving, Papa."



Caltech discarded our print holdings of *Physics Today* after it became available online. Unfortunately, the resolution of a figure in the online version is inadequate to meet the needs of one of our faculty. If anyone still has the print volumes and can create a scan at 600 dpi, it will be greatly appreciated.” The mighty USNO responded: I pulled the volume from our stacks, scanned our paper copy and sent it to George. This shows that archival paper copies need to be kept somewhere for those cases when the virtual versions turn out to be inadequate to meet the needs of our patrons.

In 2012, an IFLA satellite meeting<sup>4</sup> was held in Finland and looked at repository print collections. They looked at cooperative programs in to manage access to print resources in Australia, Finland, France, the UK, the US, and Poland. This investigation showed there are several successful programs we could emulate, and included examples of impressive storage facilities throughout the world. College and Research Libraries (CRL) will lead a program at the ALA conference called “Looking to the Future of Shared Print.” The UK is continuing its work building a sustainable national research collection. These collections are up and running; we could do the same for astronomy.

The libraries of LISA could move through the crystal dome and begin to organize for the future; they can begin to look at the idea of not national repositories but international astronomy cooperative ventures. In 2011, Uta Grothkopf said: “The world of libraries is changing fast. The times when they were simply repositories of printed documents are long gone, because being curators of historic documents is important, but it is not the only thing librarians do today” (Grothkopf 2011).

I say perhaps somebody does need to remain the repository for printed documents. This transition would entail coordinated strategic action by the regional astronomy libraries to preserve legacy print collections in a responsible way, and to make use of new digital resources and technology effectively. We would strive to expand electronic access to critical primary source materials, ensure continuous long-term access to “last copy” paper collections and support investment in digital resources and preservation.

The staying power of the old-fashioned book shows that one medium does not replace another. Manuscript publishing flourished long after Guttenberg’s invention; newspapers did not wipe out the printed book; the radio did not replace the newspaper; television did not destroy the radio; the Internet did not make people give up their TV sets. Where will our print collection be in 2050? I predict it will be in a paper repository.

## 5. Conclusion

At the USNO we are digitalizing some of our unique holdings, and we offer e-book and e-access to our journal holdings. We scan our interlibrary loan requests and send them all over the world via the Internet. But we also save our paper books, and we will continue to save our paper books and journals. We can, perhaps, be the beginning of the paper repository in North America. Our job is to kindle an awareness of the knowledge, the story, and the past presenting itself to everyone who just might be interested. While the technology may change, the mission remains the same. Libraries are a measure of the cultural level of society. Books are the collective memory of our history. We want them to wind up in the best possible place, where they can be used for scholarly research. But what will this look like? How will the libraries provide access

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<sup>4</sup><http://www.nrl.fi/ifla2012/kuopiosatellite/>

to the materials? These are all questions about which we can only speculate. Perhaps cooperative collection paper storage will be the answer.

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